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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/723,353	11/25/2003	George M. Acosta	SENS0001	8248
22862	7590	06/14/2004	EXAMINER	
GLENN PATENT GROUP 3475 EDISON WAY, SUITE L MENLO PARK, CA 94025			GEISEL, KARA E	
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			2877	

DATE MAILED: 06/14/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/723,353	Applicant(s) ACOSTA ET AL.	
	Examiner Kara E Geisel	Art Unit 2877	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 November 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-46 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 45 and 46 is/are allowed.
- 6) ☒ Claim(s) 1-7, 9-13, 17-21, 24, 31, 33, 35-38 and 40 is/are rejected.
- 7) ☒ Claim(s) 8, 14-16, 22, 23, 25-30, 32, 34, 39 and 41-44 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-6, and 10 are rejected under 35 U.S.C. 102(b) as being anticipated by Judge et al. (USPN 4,047,032).

In regards to claim 1, Judge discloses a method of generating a reference signal comprising providing a spectrometer (figure) having a source (21) that emits incident photons, providing a ceramic element (26) having an incident surface and an internal scattering body, directing at least a portion of the incident photons towards the incident surface (column 4, lines 3-10), scattering at least a portion of the incident photons by the ceramic (column 4, lines 10-16), and detecting at least a portion of the scattered photons (column 4, lines 19-32), wherein the reference signal is generated.

In regards to claim 2, the scattered photons result from physical interaction with the incident surface (column 4, lines 55-66).

In regards to claim 3, the incident surface of the ceramic diffusely reflects the incident photons (column 3, lines 23-30).

In regards to claim 4, the spectrometer comprises a single beam analyzer (figure).

In regards to claim 5, the method further comprises operating the spectrometer in diffuse reflectance mode (column 3, lines 25-66).

In regards to claim 6, the spectrometer further comprises a coupling optic (22) and a wavelength separation device (23).

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In regards to claim 10, the reference signal comprises a reference spectrum (column 4, lines 26-47).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 7, 9, and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Judge et al. (USPN 4,047,032) in view of Malin et al. (USPN 6,236,047).

In regards to claim 7, Judge discloses a method of generating a reference signal, wherein a spectrometer comprises a coupling optic. It is not disclosed that the coupling optic is positioned after the ceramic element. However, the invention is directed to the standard used to calibrate the spectrometer, which could be used for any near infrared diffuse reflectance spectrometer in order to calibrate the spectrometer (column 3, lines 21-47).

For example, Malin discloses a near infrared diffuse reflection spectrometer (fig. 1a, and column 9, lines 21-46). The spectrometer is calibrated using a standard such as the one described by Judge

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(column 5, lines 15-20). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use Judge's ceramic standard with Malin's near infrared diffuse reflection spectrometer in order to calibrate it. Furthermore, the coupling optic (Malin fig. 1A, 14) in the combined spectrometer and standard would be positioned after the ceramic element (the ceramic element would be placed in the same position the sample is placed in Malin's spectrometer, fig. 1A, 56).

In regards to claim 9, using the ceramic element of Judge's method to calibrate Malin's spectrometer is disclosed above. Furthermore, the wavelength selection device of this combined system is a grating (Malin fig. 1B, 18A).

In regards to claim 11, using the ceramic element of Judge's method to calibrate Malin's spectrometer is disclosed above. Furthermore, the spectrometer is a noninvasive glucose analyzer (Malin column 1, lines 10-23).

Claims 12-13, 17, 31, 33, and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Judge et al. (USPN 4,047,032) in view of Keranen et al. (USPN 5,612,782).

In regards to claims 12 and 13, Judge discloses a method of generating a reference signal, however, it is not disclosed that the ceramic is coated with a protective coating contacting and completely covering the incident surface of the ceramic. However, it is very well known in the art to cover a standard in order to protect the standard from the environment, to protect it from scratches and from being discolored.

For example Keranen discloses a standard used for calibrating a spectrometer (column 1, lines 6-22). The standard is coated with a protective layer (column 3, lines 21-32). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to cover the ceramic standard of Judge's system with a protective coating, such as the one in Keranen's system, in order to protect the standard from the environment, and to protect it from scratches and from being discolored.

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In regards to claim 17, the protective coating comprises sapphire (Keranan column 3, lines 27-37).

In regards to claim 31, Judge discloses an apparatus for generating a reference signal comprising a ceramic having an incident surface and a back surface (26), however, it is not disclosed that the ceramic is coated with a protective coating contacting and completely covering the incident surface of the ceramic. However, it is very well known in the art to cover a standard in order to protect the standard from the environment, to protect it from scratches and from being discolored.

For example Keranan discloses a standard used for calibrating a spectrometer (column 1, lines 6-22). The standard is coated with a protective layer (column 3, lines 21-32). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to cover the ceramic standard of Judge's system with a protective coating, such as the one in Keranan's system, in order to protect the standard from the environment, and to protect it from scratches and from being discolored.

In regards to claim 33, the incident surface is flat (Judge column 4, lines 63-64).

In regards to claim 35, the protective coating comprises sapphire (Keranan column 3, lines 27-37).

Claims 13, 18-19, 31 and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Judge et al. (USPN 4,047,032) in view of Kojima et al. (USPN 5,263,042).

In regards to claims 12 and 18, Judge discloses a method of generating a reference signal, however, it is not disclosed that the ceramic is coated with a metallized coating. However, it is very well known in the art of diffusion reflectors, to cover a reflector with a metallized coating in order to improve the diffuse reflectance of an object.

For example, Kojima discloses a diffuse reflector. The reflector is made of a ceramic (column 2, lines 5-24), and the ceramic is coated with a layer of metal (column 2, lines 47-63). This is done in order to improve the diffusion reflectance of the reflector (column 2, lines 59-63). Therefore, it would have

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been obvious to one of ordinary skill in the art at the time the invention was made to cover the ceramic standard of Judge's system, with a metallized coating, wherein the metallized coating scatters at least a portion of the incident light, preventing at least a portion of the incident light from penetrating into the internal scattering body of the ceramic, in order to improve the diffusion reflectance efficiency of the standard.

In regards to claim 19, the metal coating comprises either silver or gold (Kojima column 2, lines 59-63).

In regards to claim 31, Judge discloses an apparatus for generating a reference signal comprising a ceramic having an incident surface and a back surface (26), however, it is not disclosed that the ceramic is coated with a first layer in continual contact with and coated over the incident surface, wherein the first layer is a metallized coating. However, it is very well known in the art of diffusion reflectors, to cover a reflector with a metallized coating in order to improve the diffuse reflectance of an object.

For example, Kojima discloses a diffuse reflector. The reflector is made of a ceramic (column 2, lines 5-24), and the ceramic is coated with a layer of metal (column 2, lines 47-63). This is done in order to improve the diffusion reflectance of the reflector (column 2, lines 59-63). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to cover the ceramic of Judge's system, with a metallized coating, wherein the metallized coating scatters at least a portion of the incident light, preventing at least a portion of the incident light from penetrating into the internal scattering body of the ceramic, in order to improve the diffusion reflectance efficiency of the apparatus.

In regards to claim 36, the metal coating comprises either silver or gold (Kojima column 2, lines 59-63).

Claims 20-21, 24, 37-38, and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Judge et al. (USPN 4,047,032) in view of Kojima et al. (USPN 5,263,042), as applied to claims 13, 18-19, 31, and 36 above, and further in view of Keranen et al. (USPN 5,612,782).

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In regards to claims 20-21, and 37-38, the combined method and apparatus comprising a ceramic element with a metallized coating is disclosed above. It is not disclosed that the metal coating is coated with a protective coating contacting and completely covering metal coating. However, it is very well known in the art to cover a standard in order to protect the standard from the environment, to protect it from scratches and from being discolored.

For example Keranen discloses a standard used for calibrating a spectrometer (column 1, lines 6-22). The standard is coated with a protective layer (column 3, lines 21-32). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to cover the metallized layer of the standard of the combined system with a protective coating, such as the one in Keranen's system, in order to protect the standard from the environment, and to protect it from scratches and from being discolored.

In regards to claims 24 and 40, the protective coating comprises sapphire (Keranen column 3, lines 27-37).

Allowable Subject Matter

Claims 45-46 are allowed.

Claims 8, 14-16, 22-23, 25-30, 32, 34, 39, and 41-44 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

As to claim 8, the prior art of record, taken alone or in combination, fails to disclose or render obvious a method of generating a reference signal comprising a step of varying a distance between a ceramic and a interface optic in order to increase or decrease the signal, in combination with the rest of the limitations of claim 8.

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As to claim 14, the prior art of record, taken alone or in combination, fails to disclose or render obvious a method of generating a reference signal wherein a wavelength reference layer comprises at least one of polystyrene, polyethylene, polypropylene, epoxy, plastic, erbium oxide, holmium oxide, and dysprosium oxide, in combination with the rest of the limitations of claim 14.

As to claim 15, the prior art of record, taken alone or in combination, fails to disclose or render obvious a method of generating a reference signal wherein the incident photons and the scattered photons are at least partially absorbed by a wavelength reference layer, in combination with the rest of the limitations of claim 15.

As to claim 22, the prior art of record, taken alone or in combination, fails to disclose or render obvious a method of generating a reference signal wherein a wavelength material comprises any of polystyrene, polyethylene, polypropylene, epoxy, plastic, erbium oxide, holmium oxide, and dysprosium oxide, in combination with the rest of the limitations of claim 22.

As to claim 23, the prior art of record, taken alone or in combination, fails to disclose or render obvious a method of generating a reference signal comprising utilizing a signal to generate at least one of a transmittance value and an absorbance value, in combination with the rest of the limitations of claim 23.

As to claim 25, the prior art of record, taken alone or in combination, fails to disclose or render obvious a method of generating a reference signal comprising a second layer comprising a second metallized coating, in combination with the rest of the limitations of claim 25.

As to claim 32, the prior art of record, taken alone or in combination, fails to disclose or render obvious an apparatus for generating a reference signal wherein at least one of an incident surface or back surface is optically rough, in combination with the rest of the limitations of claim 32.

As to claim 34, the prior art of record, taken alone or in combination, fails to disclose or render obvious an apparatus for generating a reference signal wherein a first standard wavelength material

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comprises any of polystyrene, polyethylene, polypropylene, epoxy, plastic, erbium oxide, holmium oxide, and dysprosium oxide, in combination with the rest of the limitations of claim 34.

As to claim 39, the prior art of record, taken alone or in combination, fails to disclose or render obvious an apparatus for generating a reference signal wherein a secondary standard wavelength material comprises any of polystyrene, polyethylene, polypropylene, epoxy, plastic, erbium oxide, holmium oxide, and dysprosium oxide, in combination with the rest of the limitations of claim 39.

As to claim 41, the prior art of record, taken alone or in combination, fails to disclose or render obvious an apparatus for generating a reference signal wherein a secondary metallized coating comprises any of gold, silver, aluminum, platinum, chromium, lead, and copper, in combination with the rest of the limitations of claim 41.

As to claim 42, the prior art of record, taken alone or in combination, fails to disclose or render obvious an apparatus for generating a reference signal comprising a third layer in continual contact with an coated over an entire second layer, in combination with the rest of the limitations of claim 42.

Additional Prior Art

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The prior art made of record is Sommer (USPN 4,647,198), Honigs et al. (USPN 5,251,006), Kretman et al. (USPN 6,497,946), and Pawluczyk et al. (US Pub 2004/0008343).

Sommer discloses an optical standard comprising a cement layer, and a layer of PTFE.

Honigs discloses a method of generating a reference signal comprising providing a spectrometer having a source that emits incident photons, providing a ceramic element having an incident surface, and an internal scattering body, directing at least a portion of the incident photons toward the incident surface, scattering the portion of photons by the ceramic, and detecting at least a portion of the scattered photons, wherein a reference signal is generated.

Kretman discloses an optical standard for diffuse reflection.

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Pawluczyk discloses an optical standard for diffuse reflection comprising multiple layers, which can include ceramic, sapphire, aluminum, chromium, nickel, gold, silver, and/or plastic.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kara E Geisel whose telephone number is **571 272 2416**. The examiner can normally be reached on Monday through Friday, 8am to 4pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank Font can be reached on **571 272 2415**. The fax phone numbers for the organization where this application or proceeding is assigned are 703 872 9306 for regular communications and 703 872 9306 for After Final communications. For inquiries of a general nature, the Customer Service fax number is 703 872 9317.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703 308 1782.


F.L. Evans
Primary Examiner
Art Unit 2877

K.G.

KEG
June 9, 2004